

Using Calculators in General Chemistry

During exams in this class you will use only CASIO *fx-260solar* calculators. These are simple, scientific calculators that will be more than sufficient to perform any calculations you will encounter in general chemistry. Below are images of the two models of calculators (light keys and dark keys):



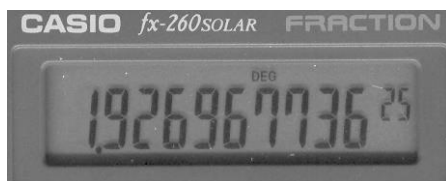
In the display of each is the number 6.626×10^{-34} . Notice how the exponential numbers (10^{-34}) leave out the “10”—this part is assumed. So how do you input an exponential value into one of these calculators? Use the EXP key (see the black arrow in the figures below).



If you want to use the number 6.626×10^{-34} in a calculation, you simply type 6.626 $\overline{\text{EXP}}$ 34 $\overline{\text{+/-}}$. The $\overline{\text{EXP}}$ means that you will raise 10 to some power. Notice how you would type in 10^9 or 1×10^9 . If you want to type in this number you would type 1 $\overline{\text{EXP}}$ 9. If you type 10 $\overline{\text{EXP}}$ 9 the calculator would translate this as 10×10^9 , which would be 10^{10} —your calculation would be off by a whole order of magnitude!!



Lastly, here are some displays of numbers from a typical calculation ($1.92697736 \times 10^{25}$). The Casio returns 10 digits, plus the power of 10. Each calculator actually keeps more digits in its memory than is displayed on the screen. In general chemistry, 10 figures will be more than enough digits for your calculations.



Although these calculators are simple, they are powerful, too. They have

1. memory functions,
2. a way to retype a number if you put in a wrong digit,
3. take the reciprocal of a number,
4. calculate square roots and cube roots quickly, and
5. nested functions (i.e., use parentheses to separate parts of a calculation).

4a. To take the square root, hit the SHIFT key, followed by x^2

3. Hit SHIFT and the $\overline{\text{---}}$] key to take the reciprocal of a number

1. Hit the SHIFT key, then MR to put the number to the memory. Hit MR to recall the number from memory

5. These keys allow you to perform functions in parentheses

4b. Hit SHIFT, then $\overline{\text{+/-}}$ to take the cube root

2. Hit this arrow key to backspace